High Energy Physics Division

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Sealed Source Program Compliance Self Assessment

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High Energy Physics Division Sealed Source Self Assessment

Self assessment procedure: As required by the sealed source self assessment the HEP division performed a visual search of all spaces occupied by the division. In addition, with the assistance of health physics personnel a radiation survey of all laboratory work spaces was completed for building 362. This radiation survey of the space occupied by the division is being continued in building 366. The survey of building 362 could not be completed due to manpower limitations but is ongoing. We have compiled all historical sealed source documentation from the current and past sealed source custodians.

Results: Through the review process and visual inspection we have found the following items (Note, aside from item #3 and possibly #8, none of these items are issues regarding the SSID compliance.

Building 362

#1 Room E032: A contaminated lead brick was found, bagged, and will be properly disposed through waste management.

#2 Room E040: Found several commercial lenses with low levels or radioactivity. It is assumed that these lenses contain small amounts of thorium. They have been bagged and tagged as having low levels of radioactivity.

#3 Room C116: A source previously deemed exempt but we now consider it accountable. The source has been added to the SSID and will be tagged appropriately.

#4 Room E213: Found an old target with very low levels of radioactivity. This item has been bagged and will be stored in a controlled area until a proper course of action has been determined.

#5 Room E233: A tape dispenser previously tagged as having low levels of radiation from materials from which it is constructed was found. It has been bagged and will be properly disposed as low level radioactive waste.

#6 Room E288: A commercial electrode containing thorium was found. The item has been tagged and will be properly disposed as low level radioactive waste.

#7 Room F232: A survey instrument whose lenses contain small amounts of some radioisotope was found. This instrument has been tagged as having small amounts of radioactivity.

Building 366

#8 Room 101: Several sources that are part of commercial equipment have been disclosed to the SSID division coordinator. Whether these items need to be part of the SSID program is being determined.

It has been assumed that the leak test documentation is sufficient for inventory purposes therefore the compiled documentation has many missing inventory checklists. Additionally, in the period from 1994 – 1996 our division has several missing leak tests. After this period, aside from some late leak tests, the leak-test documentation is complete.

#	PARA.		YES	NO	Comments
			x	x	
	5.20.3	RESPONSIBILITIES			
1		Has DD appointed a Division SSID Coordinator?	x		
2		Are Custodians, Delegates and Users RWI or RWII trained?	x		
3		Does Division ensure that outside contractors & users comply with 5.20?	x		
4		Is Custodian current in ESH709 training?	x		
5		Are sources stored securely?	x		
6		Is storage location properly rad posted?	x		
7		Does Custodian maintain a complete history file for each source?		x	See attached
8		Are source records submitted with Div radiological records for archival storage?		x	See attached
9		Is the location of every source known by Custodian?	x		
10		Are loans to Authorized Users recorded, along with location?	x		
11		Does Custodian verify qualifications of source users?	x		
12		Are borrowed sources returned promptly?		x	See attached
13		Have leak tests been performed within six-month intervals?		x	See attached
13B		Does HP staff maintain leak test reports for 18 months or more?	x		
14		Have inventory audits been performed within six-mont intervals?		x	See attached
15		Are leak test and audit report forms on file with permanent source records?	x		
16		Does the Division Coordinator monitor the timeliness of source maintenanace by Custodians?	x		
	5.20.5	ACCOUNTABILITY			
17		Have all Accountable Sealed Sources been entered into SSID (per Table 5.20-1)?	x		See attached
18		Has the accountability of mixed sources been verified with sum-of-fractions rule?	x		
	5.20.6	STORED SOURCES NOT IN USE			
19	5.20.10	Have stored sources been placed in tightly sealed containers?		x	See attached
20	5.20.6	Have SSID storage custody seals been applied?	x		
21	5.20.10	Are the sources located in secure, locked storage cabinets or rooms?	x		
22		Was the storage location reviewed by a Health Physicist?	x		
23	5.20.6	Was a leak test perfomed within the previous 6 months preceding custody seal application?	x		
	5.20.7	SOURCES BELONGING TO NON-ANL USERS			
24		Was permission requested in writing prior to deliver of sources on site?	x		
25		Was permission granted from the RSO, listing each source, prior to delivery.	x		
26		Did a copy of written permission accompany shipment?	x		
27		Did organization provide copies of six-month leak tests and inventory verifications to host	x		
28		…division line supervisor and health physicist while sources were on site?			
	5.20.8	SOURCE AND CONTAINER LABELING			
29		Are exempt sealed sources labeled according to 5.26?	x		

#	PARA.		YES	NO	Comments
30		Are formerly accountable but now exempt sources clearly labeled as exempt?	x		
31		If source is normally kept in a shielded container, is the unshielded dose rate @ 30 cm	x		
		…indicated on the label?			
32		Do labels comply with the contents of Figure 5.20-2 (ESH-SSID-11)?	x		
33		Is the name of the current custodian correctly indicated on the label?	x		
34		Are sources not kept in containers fully labeled (unless physically too small)?	x		
35		Are very small sources labeled with at minimum the ANL SSID ID Code?	x		
36		Do instruments containing Accountable Sealed Sources bear both ESH-SSID-014 label…	x		
		…and instrument rad label (Fig 5.20-3)?			
	5.20.11	SOURCE INTEGRITY			
37		Have leak tests been performed regularly within the six-month maximum interval?	x		
38		Has the 30-day grace period been invoked? If so, was just cause documented?		x	
39		Are all leak test records kept on permanent file by Custodian (or Division)?	x		
40		Are leaktest records submitted to EQO regularly for archiving?		x	
	5.20.12	LEAK TEST PRECAUTIONS			
41		Is an RWP and written procedure invoked for leak testing of sources exceeding 100 mrem/h..	x		not applicable
		…at 1 foot or 10 rem/h on contact?			
42		Has an RWP and written procedure been invoked for sources in storage for more than two..	x		not yet needed
		..years?			
	5.20.13	SSID DATABASE RECORDS			
43		Are the SSID fields completely and accurately filled out?	x		
44		Have inventory verifications been regularly performed within the 6-month max interval?		x	See attached
45		Has the 30-day grace period been invoked? If so, was just cause documented?	x		See attached
	NA	RECORDS VERIFICATION			
46		Did representative sample records from SSID for this Custodian accurately reflect source…	x		
		…description, location, and maintenance history?			
47		Did representative sample sources found at Custodian's location have complete and …	x		
		…accurate SSID entries?			
48		Does the number of Accountable Sealed Sources in SSID records for this Custodian…		x	See attached
		…agree with the number observed in physical inventory?			

Comments on 5-20 Compliance

#7 – Does Custodian maintain a complete history file for each source?
Explanation: History files for sources obtained before the SSID was created on 06/94 have not been created. However, permanent documentation on all sources obtained after this date have been maintained.

#8 – Are source records submitted with Div radiological records for archival storage?
Explanation: The records have been maintained since the creation of the SSID but they have not been submitted for archival storage.
Solution: HEP has gathered and organized all source records for duplication and submission of original copies and these will be submitted for permanent archival storage. HEP is changing its procedures to include a once a year submission of all source records to archival storage.

#12 – Are borrowed sources returned promptly?
Explanation: HEP sealed sources are currently located in three different areas; permanent storage areas in building 362 (rooms E044 and E288) and building 366. The sources are locked up, but there is only one sealed source custodian in the division and he does not have complete access control of the areas, the storage containers, and the keys to the sources are controlled by the person to which the sources are loaned.
Solution: Separate sealed source custodians for each of the areas listed above will tightly control access to all sources in their custodianship.

#13 – Have leak tests been performed within six-month intervals?
Explanation: Leak tests and inventories have been scheduled on 6 month intervals and aside from a few past delays that have been noted in ANL PAAA noncompliance screening forms the six month schedule has been strictly followed. Most of these have been within the 30 day grace period.

#14 – Have inventory audits been performed within six-month intervals?
Same explanation as #13

#17 – Have all Accountable Sealed Sources been entered into SSID (per Table 5.20-1)?
Explanation: One source was found that was originally believed to be an exempt sealed source but through further review it was found to be accountable. This source has been entered into the SSID.

#19 – Have stored sources been placed in tightly sealed containers?
Explanation: Almost all of the HEP sealed sources are in storage in "paint cans". However, we have a 1 millicurie ^{60}Co source which has a large lead pig and therefore is too large to fit into such a container. This source will be surveyed and removed from "storage". We will look for an appropriate sized hermetically sealed container for this source.

#37 – Have leak tests been performed regularly within the six-month maximum interval?
Same explanation as #13

#38 – Has the 30-day grace period been invoked? If so, was just cause documented?
Same explanation as #13

#40 – Are leak test records submitted to EQO regularly for archiving?
Same explanation as #8

#44 – Have inventory verifications been regularly performed within the 6-month max interval?
Same explanation as #13

#45 – Has the 30-day grace period been invoked? If so, was just cause documented?
Same explanation as #13

#48 - Does the number of Accountable Sealed Sources in SSID records for this Custodian agree with the number observed in physical inventory?
Same explanation as #17

Space occupancy report search results High Energy Physics Division

Building Code	Floor Code	**Room Code**	Occupant	**Space Searched**	**Space Surveyed**	**Something Found**
362	01	**B153**	Proudfoot	x		
362	01	**B132D**	LeCompte	x		
362	01	**B132E**	ATLAS Center	x		
362	01	**B116A**	ATLAS Center	x		
362	01	**B116B**	ATLAS Center	x		
362	01	**C116**	Bulka Lab	x	x	x
		Explanation: Found a source previously deemed exempt but we now consider it accountable. The source has been added to the SSID and will be tagged appropriately.				
362	01	**D114**	Storage	x	x	
362	01	**E029**	Spinka Storage	x	x	
362	01	**E032**	Drake Storage	x	x	x
		Explanation: A contaminated lead brick was found, bagged, and will be properly disposed through waste management.				
362	01	**E032A**	Drake Storage	x	x	
362	01	**E040**	Optics Lab	x	x	x
		Explanation: Found several commercial lenses with low levels of radioactivity. It is assumed that these lenses contain small amounts of Thorium. They have been bagged and tagged as having low levels of radioactivity.				
362	01	**E044**	Optics lab and sealed source storage	x	x	
362	01	**E048B**	Klepec Storage	x	x	
362	01	**E050**	Klepec Storage	x	x	
362	01	**E101**	Weerts	x		
362	01	**E108**	Copy Room	x		
362	01	**E109**	Klepec	x		
362	01	**E112**	Room next to copier	x		
362	01	**E116**	Adams Lab	x	x	
362	01	**E117**	Drake	x		
362	01	**E121**	Guirguis	x		
362	01	**E124**	Drake Lab	x	x	
362	01	**E125**	Bodwin	x		
362	01	**E129**	Berger	x		
362	01	**E132**	Drake Lab	x	x	
362	01	**E133**	Gotlund	x		
362	01	**E137**	Wagner	x		
362	01	**E140**	Theory Workroom	x	x	
362	01	**E141**	Medina	x		
362	01	**E145**	Batra	x		
362	01	**E149**	Blazas	x		
362	01	**E153**	Lillie	x		
362	01	**E157**	Sinclair	x		
362	01	**E161**	Zachos	x		
362	01	**E165**	Tait	x		
362	01	**E165A**	Nadolsly	x		
362	01	**F109**	Yusof	x		
362	01	**F113**	Liu	x		
362	01	**F116**	Konecny Lab	x	x	

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Building Code	Floor Code	**Room Code**	Occupant	**Space Searched**	**Space Surveyed**	**Something Found**
362	01	**F117**	Antipov	**x**		
362	01	**F121**	Conde	**x**		
362	01	**F124**	MINOS Workroom	**x**	**x**	
362	01	**F125**	Gai	**x**		
362	01	**F129**	Talaga	**x**		
362	01	**F132**	Power Office & Lab	**x**	**x**	
362	01	**F133**	Malhotra	**x**		
362	01	**F137**	Reichenbacher	**x**		
362	01	**F140**	McKeowan, McCowan,Schreiner	**x**	**x**	
362	01	**F141**	Reyna	**x**		
362	01	**F145**	Ayres	**x**		
362	01	**F149**	Kovacs/Fields	**x**		
362	01	**F153**	Goodman	**x**		
362	01	**G108**	Giurgiu	**x**		
362	01	**H122**	Computer and Theory room	**x**		
362	02	**C256**	Anderson/DeLurgio Lab	**x**	**x**	
362	02	**D232**	Fax and Storage Room	**x**	**x**	
362	02	**E201**	Price	**x**		
362	02	**E205**	Hayes	**x**		
362	02	**E208**	Seivwright/Byrum Students/Hill	**x**		
362	02	**E208B**	Hays	**x**		
362	02	**E208D**	Drake Laser Lab	**x**		
362	02	**E209**	Yoshida	**x**		
362	02	**E213**	Derrick	**x**	**x**	**x**
		Explanation: Found an old target with very low levels of radioactivity. This item has been bagged and will be stored in a controlled area until a proper course of action has been determined.				
362	02	**E216**	Rezmer/Musgrave	**x**		
362	02	**E217**	Karr	**x**		
362	02	**E221**	Van Gemmeren	**x**		
362	02	**E225**	Repond	**x**		
362	02	**E229**	Malon	**x**		
362	02	**E233**	May	**x**		**x**
		Explanation: A tape dispenser previously tagged as having low levels of radiation from materials from which it is constructed was found. It has been bagged and will be properly disposed as low level radioactive waste.				
362	02	**E237**	Magill	**x**		
362	02	**E240**	Hayden/Mary Lab	**x**		
362	02	**E241**	Kreps	**x**		
362	02	**E245**	Delurgio	**x**		
362	02	**E248**	Kreps/Reszmer Lab	**x**	**x**	
362	02	**E249**	Cranshow	**x**		
362	02	**E253**	Gieraltowski/Dawson	**x**		
362	02	**E256**	DeLurgio/Anderson Lab	**x**	**x**	
362	02	**E257**	Schlereth	**x**		
362	02	**E261**	Anderson	**x**		
362	02	**E264**	CDF Workroom	**x**	**x**	

Space occupancy report search results High Energy Physics Division

Building Code	Floor Code	**Room Code**	Occupant	**Space Searched**	**Space Surveyed**	**Something Found**
362	02	**E265**	Vaniachine	**x**		
362	02	**E269**	Nodulman	**x**		
362	02	**E273**	Wicklund	**x**		
362	02	**E277**	Blair	**x**		
362	02	**E281**	Khulmann	**x**		
362	02	**E285**	Bob Wagner	**x**		
362	02	**E288**	Underwood Lab	**x**	**x**	**x**
		Explanation: A commercial electrode containing thorium was found. The item has been tagged and will be properly disposed as low level radioactive waste.				
362	02	**E289**	Horan	**x**		
362	02	**E293**	Byrum	**x**		
362	02	**F200**	Computer Room	**x**	**x**	
362	02	**F208**	Cosmic Ray Teststand	**x**	**x**	
362	02	**F209**	Norem	**x**		
362	02	**F213**	Yokosawa	**x**	**x**	
362	02	**F216**	Mechanical Lab	**x**	**x**	
362	02	**F217**	Stanek	**x**		
362	02	**F221**	Spinka	**x**		
362	02	**F224**	Spinka Lab	**x**	**x**	
362	02	**F225**	Underwood	**x**		
362	02	**F229**	Grudzinski	**x**		
362	02	**F232**	Kasprzyk Ofice & Lab	**x**	**x**	**x**
		Explanation: A survey instrument whose lenses contain small amounts of some radioisotope was found. This instrument has been tagged as having small amounts of radioactivity.				
362	02	**F233**	Vacant	**x**		
362	02	**F237**	Lipkin	**x**	**x**	
362	02	**F240**	Conference Room	**x**		
362	02	**F241**	Uretskt/Ramsey	**x**	**x**	
362	02	**F245**	Guarino	**x**		
362	02	**F249**	Wang	**x**		
362	02	**F253**	Conference Room	**x**	**x**	
362	02	**H230**	Students	**x**	**x**	
366	1	**101**		**x**		**x**
		Explanation: Several sources that are part of commercial equipment have been disclosed to the SSID division coordinator. Whether these items need to be part of the SSID program is being determined.				
366	1	**102**		**x**		
366A	1	**101**		**x**		